Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

thousand from this group of causes against a mortality of only 2.1 per thousand for persons of native parentage. And in the same manner the industries and employments in which respiratory diseases, in part, perhaps, as the result of exposure to extremes of heat and cold, are most common, could have been pointed out. On reference to a subsequent section of the report it is shown, for instance, that pneumonia causes a mortality of 2.6 per thousand among clergymen, while causing a death rate of only 1.2 per thousand among bankers and brokers. For some curious reason, in the discussion of respiratory diseases a table is incorporated, showing the mortality by conjugal condition, which should have been given in the discussion of conjugal mortality in another portion of the report.

Deaths from Diseases Peculiar to Women.

Diseases of the female organs of generation are discussed as a class, when a brief statement of the more important diseases forming this group would have been a useful addition to the tables. Affections connected with pregnancy are discussed in some detail, but, as previously pointed out, for some inexplicable reason, without reference to conjugal condition. Such details could also have been given to advantage as to the different puerperal diseases, especially as to abortion, post-partum hemorrhage, extra-uterine pregnancy, etc. The rates per thousand are calculated for the entire child-bearing period, that is, fifteen to forty-nine. This is a most unfortunate limitation, since there are unquestionably very important differences in the mortality from puerperal affections at different periods of life. The rates should have been given by ten-year periods from fifteen to forty-five, and by a twenty-year period from forty-five to sixty-four. Such rates would have been readily comparable with other rates for the purpose of affording a measure of the real importance of the mortality from this group of causes. As given (that is, fifteen to forty-nine), the rates are comparable with none in other parts of the census analysis. But the most serious omission is the absence of any information regarding the deaths in pregnancy by conjugal condition.

The Mortality from Accidents and Injuries.

Accidents and injuries are considered as a group; and no detailed analysis is made of the different causes, which, of course, are a matter of very considerable economic and social importance. In the many discussions of Employers' Liability Acts and Government Insurance Protection of workingmen in dangerous trades and industries, a detailed analysis of this kind would have proven a very useful addition to a very limited body of facts.* The discussion of accidents and injuries as a group serves absolutely no practical purpose, since the deductions cannot be applied to the solution of any given problem, being derived from radically different fundamental conditions, and giving rates and ratios of no definite value. As previously stated, deaths from poison have not been included here, having been incorporated in the group termed "General Diseases — B." But it may be added that in the detailed discussion no reference whatever is made to this group of diseases and accidents which, from a medico-legal point of view, is certainly deserving of considerable attention, and also from the standpoint of industrial hygiene in any inquiry relating to the occurrence of chronic industrial poisoning. The absence of a definite distinction between deaths from chronic poisoning and accidents of this nature is a further indication of the non-critical nature of the final analysis. It is hardly necessary to say that deaths from accidental poisoning should have been included in the group of accidents and injuries. A still more curious and important omission in the analysis is the mortality from homicide; and, while a most elaborate discussion follows regarding deaths from suicide, no reference whatever is made to deaths from homicide in the section on accidents and injuries, nor is there a textual reference or explanation made of the reasons which prompted the omission of such an important cause of death.

---

* See "Report of the Committee on Insurance and Loans," David J. Lewis, chairman; also, "Senate Bill No. 183, Session of the Maryland Legislature, 1902."

Occupations and Mortality.

For immediately practical purposes Section XIII is, without question, the most useful portion of the report. This subject was first introduced into the reports of the Eleventh Census, previous discussions and references to the mortality by occupations having been of no practical importance. The limitation of the data to the registration area, and the calculation of accurate rates per thousand living at different periods of life, makes the basis and the conclusions at least approximately reliable. In the aggregate, information as to the mortality by occupations is given for 5,575,745 males and 1,587,874 females; but detailed information is given for eight groups of occupations subdivided into sixty specified groups for males, while for females detailed information is given in regard to fourteen employments, or groups of employments. The fundamental tables of deaths differentiate between the white and colored, making a useful distinction. The analysis, however, gives no separate rates by occupations with distinction of race.

The analysis of Mr. King does not improve the reports of Dr. Billings; and, although the statement is made that "the classification of occupations used in the present census is the same as that employed in the Eleventh Census, except that it includes all reported occupations, whereas in 1890 it included only certain specified occupations," a careful examination of the facts does not support this contention. In the report of Dr. Billings detailed information is given for eighty-nine specific employments of males against sixty employments given by Mr. King. An addition, however, is made for the table of the Twelfth Census in that data are given for persons employed in "Other Occupations of this Class," by which the value of rates for groups of occupations is, of course, enhanced. Conclusions based on groups of occupations, however, are generally misleading and of no practical importance. The tendency of recent times is illustrated in the improved decennial reports of the Registrar-General of England, being more and more toward detailed classification and information for specific trades and industries. Thus what is gained in one direction is more than balanced by the loss experienced in other directions; and important employments for which useful information was given in the Census of 1890 are, for reasons not stated, combined in groups, leading often to radically false conclusions.

Omitted Occupations Specified.

Stenographers and typewriters, wine and liquor dealers, nurses, undertakers, bleachers, bookbinders, brass-founders, coppersmiths, brick and tile makers, clock and watch repairers, jewellers and opticians, electrotypers, gas-works employees, gunsmith, locksmith, bell-hangers, harness and saddle makers, paper hangers, paper-mill operatives, photographers, potters, rubber factory employees, wheelwrights, fishermen and oystermen, pilots, quarrymen, telegraph and telephone operatives, and telegraph and telephone linemen are all omitted as specified occupations, and included in the occupations not specifically stated, or grouped with other and in a measure similar occupations. The list of omitted occupations has been given in full as an indication of the serious character and nature of the changes introduced, which certainly cannot be looked upon as an improvement of the census analysis.

Problem of Industrial Hygiene.

From the standpoint of industrial hygiene there are, for example, no more important occupations than potters and rubber factory operatives, for both of which occupations useful data are to be found in the census report for 1890; but no information is available on the basis of the Census of 1900.

Fishermen and oystermen form a group of well-defined laborers, with reference to which data are of considerable commercial importance; but they are included in the meaningless group of sailors, pilots, fishermen, and oystermen, representing certainly three well-defined groups of employments, all subject to different rates of mortality and specific disease or accident liability. Thus, for example, the comparative mortality figure for fishermen and oystermen, according to the Census of 1890, was 543, while for pilots it was 630, and for sailors 2,276. To combine such unlike employments into one group is merely to produce a figure which has absolutely no determining value. Another illustration is supplied by the combination of miners and quarrymen, two absolutely unlike occupations, especially from the point of view of accident liability. According to the Census of 1890, the comparative mortality figure of quarrymen was 469, while that for miners was given as 1,127; and to combine two such unlike occupations is again the mere production of a figure which has absolutely no determining value, but the use of which must lead to false and mischievous conclusions. It was reasonably to be expected that the census report of 1900 would materially increase the number of specific occupations dealt with in the section discussing the relation of occupation to mortality; but, as previously pointed out, instead of eighty-nine employments discussed in the Census of 1890, only sixty are dealt with in detail in the Census of 1900. To make this matter worse, the details are not given in the fundamental tables; but a vast variety of heterogeneous employments are grouped in a purely arbitrary manner, filling space to no advantage and resulting in conclusions of no practical value.*

Misleading Occupation Death Rates.

The first table of the occupation mortality analysis attempts to show the general death rates of males in sixty specified occupations. Comparison is made with similar rates for 1890, which must have been specially calculated, since they are not in Dr. Billings's reports. Although the misleading nature of such comparisons must be evident to any one who has made himself at all familiar with the fundamental principles of vital statistics, a blunder which invalidates the utility of most of the earlier contributions to vital statistics is here repeated, and incorporated in a most important public document. Since no correction is made for the differences in age distribution in widely different employments, the published rates do great injustice to employments entirely healthy, while giving a favorable position to employments the health conditions of which are quite the opposite. This point is readily illustrated, if comparison is made of the mortality of farmers and printers, the former of which, according to the census, experienced a mortality "at all ages" of 17.6 per thousand against a death rate of 12.1 per thousand for printers. Hence, apparently, printers enjoy a much lower mortality than farmers. Of course, the very opposite is the case. The inaccuracy of the rates is the result of radical differences in the age distribution of the two employments, there being 11.5 per cent. of farmers at ages sixty-five and over, while among printers there are only 1.5 per cent. living at this age period. These facts are set forth in the following table, in which a comparison is made of the crude death rates and of the corresponding death rates for divisional periods of life: —

---

* See "Scope and Method of the Twelfth Census: Critical Essays by Members of the American Economic Association," p. 502, paragraph 9.

THE COMPARATIVE MORTALITY OF FARMERS AND PRINTERS (RATES PER 1,000).

	Proportion of Population at Ages 65+	*Crude Death Rates (all ages over 10)*	*Death Rates at Specified Ages.*			
			15-24	*35-44*	*45-64*	*65+*
Farmers	11.5	17.6	3.7	4.6	13.2	96.8
Printers	1.5	12.1	5.0	12.3	20.0	108.8

It is shown by this table that, while apparently the mortality of farmers was 5.5 per thousand higher than the mortality of printers, as a matter of fact, when the proper comparison is made, the mortality in this occupation is considerably below that of printers at all periods of life. This illustration will suffice to show the misleading character of published rates arrived at by a faulty method, which, in view of all that has been written on this subject within the past thirty years, is inexcusable. The fact that rates, scientifically arrived at, are published in other portions of the analysis, does not detract from the force of this criticism; for, as previously pointed out, the census volumes are consulted as a work of reference by a large number of persons who cannot be expected to make a critical examination of all the rates and ratios published in different portions of the work.

Changes in Occupation Mortality, 1890–1900.

No explanation is given as to the probable causes of remarkable changes in the "crude" mortality rates for different occupations during the decade 1890–1900. Thus it is shown that the mortality of clergymen has increased from 18.2 to 23.5; of bankers, brokers, etc., from 4.7 to 11.8; of millers, from 17.3 to 26.6; of sailors, pilots, etc., from 22.0 to 27.7; finally, of stock raisers, herders, etc., from 19.4 to 32.1 per thousand. Remarkable decreases are shown for United States soldiers and sailors, the rate having been reduced from 22.7 to 12.1;* of boot and shoe makers, from 15.3 to 9.4; and of tailors, from 16.5 to 11.8 per thousand.† It is a very important question as to whether this indicated increase in the mortality of the occupations named has actually taken place or whether the changes in the rates are merely the result of a more accurate and complete collection of the vital statistics.

---

*According to an official statement of the Surgeon-General of the United States Army the death rate of the United States troops was 8.7 per thousand during 1890 and 22.7 during 1900, including troops serving abroad. The death rate of the United States Navy was 9.0 per thousand during 1890 and 8.9 during 1900. Of course there is a considerable difference between the mortality of the population classed as soldiers and sailors and that of troops and marines actually in service, and a still greater difference if inmates of soldiers' and sailors' homes are included in the census enumeration. But it is highly improbable and next to impossible that the mortality of the army and navy combined should have decreased from 22.7 to 12.1 per thousand during the ten years under observation. It would have been valuable to have added a table showing the mortality of the army and navy as determined by the service medical statistics for the decade 1890–1900; and a very useful table, readily obtainable, could have been added, showing by ages the mortality of inmates of soldiers' homes during the same period. Such a table would prove of considerable value in discussions of army mortality and pension problems. Unfortunately, the army and navy medical statistics are far from being as accurate, and sufficient in detail to be as useful, as the interests they are supposed to serve emphatically demand.

† This is probably the result of the influx of Russian and Polish Jews, who monopolize this trade and who more than balance the effect of an unhealthful occupation by an exceptional degree of vital resistance.

For certain occupations it would have been better if rates had been entirely omitted, even though the actual data regarding deaths by ages and causes would still have been of value. Thus, for example, the mortality of commercial travellers and of nearly all the employments of women is evidently understated and for practical purposes misleading.

The second table of this section gives the necessary fundamental facts of population and deaths by occupations and age periods with distinction of sex. This table is of considerable value and illustrates points previously discussed, for the absence of such fundamental data materially impairs the value of all analysis. The method followed of giving the actual facts for each occupation specifically discussed is excellent, and should be employed in the discussion of every important problem of vital statistics in the different sections of the analysis. The age grouping adopted is not satisfactory in that the periods should have been for ten years instead of twenty at ages under sixty-five, and the ten-year subdivisions should have been carried forward until age eighty-five. For certain occupations, especially the most unhealthy, it is of importance to know the specific death rates at periods of life above the age sixty-five. The age period sixty-five and over is entirely too long, and twenty-year periods at younger ages are insufficient to establish the actual differences in the mortality rates of persons employed in different occupations. The method employed by the Registrar-General in his supplement to the fifty-fifth annual report on the mortality of England and Wales could have been followed to advantage; or the actual facts regarding population and deaths could have been given by ten-year periods, together with the corresponding rates.

But a more serious omission in the section on mortality by occupations is, however, the omission of ages at death and corresponding rates of mortality per thousand living from specified diseases. A table is given for a number of specified employments, showing the mortality per hundred thousand from specified causes; but this table is misleading for occupations with a widely different age distribution. Thus, for example, the statement that the mortality from consumption among clerks and bookkeepers is 398.0 per hundred thousand against a rate of 182.2 for males in professional employments is, in all probability, misleading, since in the former the proportion of persons aged fifteen to twenty-four is 39.4 per cent. against 15.8 per cent. living at this age period among men in professional employments. In other words, the mortality from specified diseases possibly the result of occupation should be set forth by divisional periods of life in exactly the same manner as for the mortality from all causes. While such rates are not calculated in the reports of the Registrar-General, the fundamental data are given, making it readily possible for any one to compute the relative mortality from different causes in specified occupations. The omission indicated is a most serious one, and impairs very considerably the practical utility of the report in that the problems of industrial hygiene depend for their solution almost entirely upon accurate detailed vital statistics with due regard to divisional periods of life.

Omitted Important Employments.

As previously stated, no information is given regarding certain important occupations for which mortality data would have been of the greatest possible value. Thus, for instance, the reports contain no information regarding the mortality of potters, rubber-workers, match-workers, persons employed in the manufacture of explosives, paid firemen, etc., all employments sufficiently numerically represented in the registration area and for which accurate vital statistics are of great practical value. The main object in reports of this kind should be to furnish information likely to be useful in scientific and social investigations undertaken to determine the health conditions of the population in recognized dangerous or unhealthy industries. The reports as published contain little information of this character either in the fundamental tables or in the final analysis.

The term "Others of this class" merely adds to the confusion experienced in the practical use of the tables published, since no information is given as to the different employments included under this meaningless and misleading term.

Combinations of employments have been made, resulting in rates which cannot be applied to practical purposes. Hotel keepers should not have been combined with boarding house keepers, since the former almost invariably engage in the sale of intoxicants, while the latter do so but very rarely. The same criticism applies to the grouping of saloon keepers with restaurant keepers, the latter being generally persons who do not engage in the handling or sale of intoxicating liquors. It is, no doubt, as the result of this grouping of employments that the reported death rates of saloon keepers, etc., are so favorable to this occupation, which, without exception, on the basis of more trustworthy data, is known to be an employment subject to an excessive mortality at all periods of life.* Sailors and soldiers of the United States should not have been combined, since the two groups are subject to different rates of mortality.† Brewers should not have been combined with distillers and rectifiers, since it is highly probable that the manufacture of malt liquors has a less serious effect upon health and longevity than the manufacture of distilled and spirituous liquors. Glass blowers and glass workers are misleading terms, since, as a matter of course, glass blowers are glass workers in every sense of the word. If a subdivision was possible, detailed information should have been given regarding blowers, which occupation is claimed to be subject to a higher mortality than other employments in the glass industry. It would have been a useful contribution to our knowledge of the subject if the mortality of glass workers had been stated by subdivisions; that is, for men employed in the manufacture of general ware, window and plate glass, the three main divisions of the industry, subject, unquestionably, to different rates of mortality. Miners and quarrymen are combined into one group, resulting in death rates which are entirely and radically misleading. As far as available information goes, the former are subject to a much lower mortality than the latter.* The information should have been given separately for metal miners, since the mortality rates of the two main branches of the mineral industry are also quite different. The inclusion of four distinct occupations into the group sailors, pilots, fishermen, and oystermen, leads also to conclusions entirely at variance with the actual conditions as they affect each of the specific employments. Thus, for example, the mortality of sailors is, without question, considerably in excess of the mortality of pilots and oystermen. Of stock raisers, herders, and drovers, represented as having experienced a mortality of 32.1 per thousand, it is stated that "the number of persons (966) and deaths (31) was so small that the rates have no significance." Since this is a self-evident truth, it would have been but proper to omit this occupation entirely from the analysis, and give in place thereof data regarding paid firemen (of whom there are about 15,000 in the United States), telegraph and telephone linemen (14,765), potters and earthenware workers (16,140), and rubber workers (21,866), all occupations subject to a special disease or accident liability, regarding which it would have been of great public value to have had accurate information.

---

* See "Transactions of the Actuarial Society of Edinburgh," vol. ii., Nos. 6 and 8 (1888), and vol. iv., No. 5 (1897), being essays on the mortality of persons engaged in the sale of intoxicating liquors. Published by T. A. Constable & Co., Edinburgh.

† During the five years 1891–95, during a condition of peace, the death rate of the United States army was 6.6 per thousand, and of the Navy 8.3 per thousand.

---

*At ages 45-54, for example, according to English data for the period 1890-92 the general death rate of all miners was 19.6 per thousand. and of quarrymen 25.3 per thousand. For coal miners alone the death rate at this age period was 19.4, for copper miners 24.3, for tin miners 33.2, and for lead miners 23.9 per thousand,— indications of quite considerable differences in the mortality and specific disease liability of men engaged in the mining of coal and the different metals.

Textile workers are reported upon under the title "mill and factory operatives," including in the aggregate 150,783 males and 162,392 females. It would have been of considerable value if this large group of widely different employments had been given at least by broad divisions of cotton, wool, and silk workers. It may not be out of place to add that an important contribution to our knowledge regarding the health of persons employed in the different branches of the textile industry is made annually in his reports by the medical officer of health of Blackburn, England. A similar useful contribution regarding the health of persons employed in the manufacture of cutlery as polishers, grinders, etc., is made annually by the medical officer of health of Sheffield, England, in his reports on the health of the city. The two reports referred to illustrate the usefulness of trained officials in reporting upon local sanitary conditions, supplementing observations by carefully compiled and intelligently analyzed occupation mortality statistics. The section on occupations, therefore, falls very materially short of what this most important branch of vital statistics could readily have been made if due consideration had been given to the real elements involved in the discussion. An exceptional opportunity of adding materially to a very limited body of facts regarding some most important industrial and medical problems was not made use of.

Part I: Fundamental Tables 1 to 28.

Table 1 gives the deaths by conjugal condition, by specified causes, color, age, sex, and birthplaces of mothers. The facts are given for the United States, the registration area and its subdivisions, for the non-registration area, and in detail for each registration State. A mass of needless data occupies seventy-three pages, which could have been reduced to less than one-third if a more critical treatment had prevailed.

As previously pointed out, the deaths of the "Single" are given at all ages and at ages under fifteen, including, as a result, infants and children outside of the conjugal state. Comparisons are, therefore, erroneous and radically misleading, if based on the first two columns, including the deaths at ages under fifteen. The two columns for "All ages" and "Under fifteen" should have been omitted, and the space gained could have been used to give the deaths by ten-year periods after sixty-five until age eighty-five. Thus the value of Table I would have been largely increased, while misleading and needless data would have been omitted. The heading of this table, "Deaths from Certain Diseases and Classes of Diseases," is inaccurate in that the causes of death specified include accidents, homicides, and suicides, which of course, properly speaking, are not diseases at all. The group "General diseases—A" could have been left out as serving no useful purpose, while deaths resulting from pregnancy could have been added in the space gained. It would have been of great value if full details had been given in this table of deaths by conjugal condition for all the more important diseases peculiar to women, since data of this nature are not obtainable from local or State registration reports. Cancer and tumor should have been given separately, and the cancer mortality should have been given by organs affected. The omission of this information and the previously pointed out omission of deaths, as the result of pregnancy, very materially impair the value of what would otherwise be an exceedingly useful contribution to vital statistics.

The deaths by conjugal condition are also given by birthplaces of mothers; but, since these deaths are for all ages, they are useless, since the "Single" include infants and children under age fifteen, and a comparison of the mortality of the single and married, the widowed and divorced, on the basis of birthplaces of mothers, would be radically misleading. To determine the possible relation of nativity to conjugal mortality, separate tables should have been given for each of the twelve principal nativities specified in identically the same manner as this information is given for all nativities combined. All investigations of this kind, at least in their present state, aim to establish general principles; and for this object the data for the registration area as a whole would have been amply sufficient. More than two-thirds of the seventy-three pages are taken up with needless details for subdivisions of the registration area and the different registration States.

Table 2. The mortality by occupation is set forth in twelve tables, which take up one hundred and seventy-four pages. Here, again, the fact is ignored that present investigations into the mortality by occupations are entirely for the purpose of determining general principles; and for such investigations all details regarding subdivisions of the registration area, or information for the individual registration States, are of very small, if any, value. The fundamental distinctions are color and sex; and the former forms a useful addition to a very limited knowledge of the differential effect or the possible relation of race to occupation mortality. Unfortunately, no corresponding information is given regarding the population by color in the registration area for which the data regarding deaths by occupation are available, and hence no rates can be calculated. It is probably for this reason that the subject is not discussed in the analysis, but some reference to the subject would have been of interest. The method of giving full details for the colored by ages at death should have been followed with regard to at least twelve of the principal nativities. The data as given are useless in that the divisional periods of life are omitted. The general age distribution of deaths by occupation is defective in that the divisional periods end with sixty-five. The information should have been given for ages sixty-five to seventy-four, and seventy-five to eighty-four; and for these two additional columns space could have been found by omitting ages under fifteen and ages unknown. At ages under fifteen there were

only 2,834 deaths of males for which occupations were returned out of a total of 278,147, and the omission of this age group would therefore have been a matter of small consequence. The details are given for sixty specified occupations or groups against eighty-nine returned in the Census of 1890. If all the needless and meaningless tables for subdivisions of the registration area had been omitted, more than sufficient space would have been found to give complete details for at least one hundred specified occupations. The group "Others of this class" should have been made to include as few employments as possible, but it is here made to include 7.6 per cent. of the total number of male deaths reported by occupations.

There are twelve tables giving the mortality by occupation, with distinction of sex and color and full details for all the subdivisions of the registration area. First the data are given for both white and colored, then for the white and colored separately. The first of these three tables is needless, and it would have been more useful if instead the occupation mortality *rates* had been given for the white and colored population separately. What useful purpose it can serve to give occupation data for the United States, the registration record, the registration cities, the registration States and cities in registration States, the rural parts of registration States, the registration cities in other States, the non-registration record, and, finally, for all of the registration States separately, is beyond the comprehension of the writer, whose special work has been considerably in the direction of occupation mortality investigation.

While the first series of six tables gives the details by ages at death, the second series gives the details by causes in exactly the same manner; that is, by race, sex, and for the needless subdivisions of the registration and non-registration areas. The information is given for eighteen specific causes of death, or groups of causes, while additional data are given for cancer by five specified organs. Two unnecessary columns are added, giving the deaths from "All other causes" and "Unknown causes." While the details of cancer data are of some value, they are less useful to those interested in occupation mortality statistics than information as to the different forms of accidents and injuries. The only sub-group for this most important branch of occupation mortality statistics is burns and scalds; while no reference is made to the mortality from mining accidents, railroad accidents, accidents by machinery, etc., all of which would have been exceedingly useful and of determining practical value. No information is given as to the mortality from lead poisoning, which, while a comparatively unimportant cause of death, is of very considerable importance in considering the specific disease liability of plumbers, painters, glass workers, etc. The column showing the deaths from suicide should follow "Other accidents and injuries," and not precede this group. The fundamental error, however, which underlies the construction of this table, is that the information is not given by divisional periods of life; and thus the data are of very little value, since the possible effects of occupation on health cannot be traced by crude data of this kind. The deaths should have been given for not less than twenty specified causes or groups of causes by occupation and divisional periods of life in the manner as the deaths have been returned from all causes, at all ages, in the first six tables of the series. A ready illustration as to how the facts should have been returned is, curiously enough, found in another portion of the census volume; namely, Table 17, showing the deaths from cancer of males engaged in various occupations with distinction of age. This table, which will be referred to in the proper order, is one of the very best, from a technical point of view, which appears in this census volume. It gives real facts of real value in exactly the manner most useful for practical purposes; and the divisional periods of life are returned by thirteen specified groups of ages, amply sufficient for most purposes, although ages seventy-five and over could have been subdivided, and the terminal period of life could have been made eighty-five and over by omitting the needless column of "Unknown." If the meaning of the criticism of numerous tables in the census report is not readily intelligent to the reader, reference should be made to Table 17 on page 277 of Part I. Tables such as there given for cancer should have been given for all specified occupations, and not less than twenty causes and groups of causes of death instead of the meaningless and misleading tables of aggregate mortality by subdivisions of the registration and non-registration areas. The adoption of these suggestions would reduce the space occupied to two-thirds, or perhaps one-half; while the practical value of the work would be very materially enhanced.

There are few subjects of greater practical importance before the American public at the present time than the problem of industrial hygiene, and it is a sorry fact that nearly all our knowledge regarding the diseases of occupation is derived from English or Continental sources. The treatment of the subject in American medical works, by American writers, is entirely inadequate; and a painstaking investigation, covering ten years of issue of two leading medical journals, has proven to the writer the almost complete absence of useful contributions by qualified medical experts to our knowledge of occupation mortality. The only creditable exception to the general indifference to this subject is found in the State of New Jersey, where the State Board of Health and the State Bureau of Labor Statistics have, at different periods, published exceedingly useful investigations on the mortality of persons in the different important industries of the State. What can be done on even a very limited scale in this direction is shown by the results of an occupation inquiry made by the State Bureau of Labor Statistics of New Jersey during 1901 into the health conditions of men employed in hat manufacture and glass works. Useful information, although quite difficult of analysis, is to be found in the reports of the Bureau of Labor Statistics for 1889–95, where the trade life of workingmen is reported upon in considerable detail. The same criticism of general indifference to industrial hygiene applies to the reports of factory inspectors, which are of comparatively small practical value in contrast to the extremely interesting and valuable reports of the factory inspectors of the United Kingdom. The best work possible in this direction cannot be done until the national vital statistics relative to the mortality by occupation are reconstructed and made to conform to the demands of the specialist, who is in a position to make practical use of the data collected.

The details regarding the mortality from cancer are given in Tables 14–18; and in many respects this contribution to our knowledge of an exceedingly complex, interesting, and important subject is a most useful addition. The subdivision by ages, as has been already pointed out, is excellent in that the facts are given for thirteen divisional periods of life. Since most of the cancer mortality falls on the adult ages, more minute divisions of age periods after forty-five are of great value. The usual criticism applies to this table,—that needless information is given with regard to subdivisions of the registration area, which can hardly serve a useful purpose.

Table 15 gives the mortality from cancer by conjugal condition, and the table is properly limited to the registration record. It would have been of interest if the facts had been given regarding the Chinese, Indians, and Japanese, since we know practically nothing of the occurrence of cancer, by age and organs affected, among these elements of our population.

Table 16 gives useful details of the mortality from cancer by organs affected, but a most unfortunate and serious omission is made in that the conjugal condition was not considered. As elsewhere pointed out, the conjugal condition is no doubt, in a measure, connected with special forms of cancer, particularly among women; and other data could have been much more readily omitted than this important aspect of a most important problem. Space for this additional information could readily have been found by omitting the deaths for certain unimportant organs, as, for example, cancer of the brain, causing only twenty-seven deaths, and cancer of the eye, causing only eighteen deaths, in the entire registration area.

Tables 17 and 18 show the mortality from cancer by occupation with distinction of sex and divisional periods of life. Having already been referred to, they require no further discussion.

Table 19 is really the fundamental table of the census, and should have been given immediately after the analysis. The table shows the "Population, Births, Deaths, and Death Rates at Certain Ages and Deaths from Certain Causes by Sex, Color, General Nativity, and Parent Nativity." This table takes up two hundred and sixty-nine pages, which contain a mass of exceedingly useful information. The arrangement of the first part of the table, giving the mortality by ages, is faulty in that deaths at "All Ages" should precede deaths at "specified ages." The table illustrates the great possible usefulness of the census vital statistics, provided proper attention is given to details, and fundamental facts regarding population and deaths are given to the public. The age grouping adopted is under one and under five. No explanation is given why the facts for other divisional periods of life were not published in the same manner, since the data would have been of the greatest possible value. Most of the objections to the faulty tables and more faulty analysis would have been met by a rearrangement of this table on the basis of at least six divisional periods of life, including in each case, for each State, with distinction of sex, color, nativity, etc., the facts as to population and mortality at different periods of life. The six divisional periods could have been 0–1, 1–4, 5–14, 15–44, 45–64, 65+. If these divisional periods of life had been given, a double page would have been necessary; but sufficient space could have been found for the additional data by omitting needless data in other portions of the two volumes. Part of the table is taken up with a return of deaths by seventeen specified causes or groups of causes. Since this information is given in the aggregate, without distinction of age, the data are of very limited practical value. It is but proper to add, however, that to give this information by ages would have taken up a very considerable amount of space. Still, it would seem that, if proper discrimination had been used and large periods of life had been adopted, information of practical value could readily have been given. For example, diseases of children could have been returned for the population at ages under fifteen; diseases of middle life, such as typhoid fever, consumption, etc., could have been given for ages fifteen to forty-five; while diseases affecting older ages could have been given for forty-five and over. No corresponding rates need have been calculated, since for special requirements the original data would have been sufficient, provided both population data and death by age periods had been published. The number of diseases classified is inadequate in that two columns for "Unknown causes" and "All other causes," as well as "Old age" (which is a meaningless term), take up space which should have been given to other important causes of death. The space could have been used for suicides and accidents and injuries. The arbitrary disease classification is once more made apparent by the position given to diseases of the nervous system, which follow diseases of the liver and precede diseases of the urinary organs,— a position which is entirely out of harmony with the general principle adopted in the census volumes and any recognized system of disease nomenclature. Heart disease is combined with dropsy,— an antiquated method for which a proper explanation is wanting. In the Massachusetts registration reports, dropsy is given in connection with diseases of the urinary system; but, since in the general disease classification the position of dropsy is in the group of "General Diseases — D," it should not have been combined with heart disease, and thus give in combination a specific cause of death with an indefinite one. Table 19, however, is one of the most useful in the census volumes, and one which, for purposes of reference, will prove quite valuable. It may be added that useful rates for the adult population can be worked out by subtracting the deaths and population under five from the deaths and population at all ages. The rates will be found useful, especially for cities where local mortality conditions are materially affected by race and nativity.

Tables 20–28 are termed "ratio tables," although the three first are "rate tables" giving the equivalent mortality per hundred thousand of population. These tables have already been referred to in the review of the analysis, and space is not available for further detailed discussion. The principal objections are against the headings, which are not sufficiently intelligent and at times misleading. It would have been desirable to have added the words, "Read from left to right" or "downwards," as the case might be, to assist those not thoroughly familiar with different methods of presenting the results of such investigations. A brief textual explanation of the method used, with possibly an example, would have been of great value; and a precedent for the adoption of this suggestion will be found in Population, Part I, Table 41. Such explanations as there given regarding the nature, objects, and possible intricacies of the table, should have been added in each case where the methods or results are likely to be misunderstood.

Table 25 is an exceedingly useful one, if properly employed; and the divisional periods of life are given in full to age ninety-five and over. It is a matter of serious regret that the corresponding information regarding the population in the registration area was not also given to the public.

Tables 27–28 give the proportion of the aggregate population at each specified age per hundred thousand of population at known ages. These tables are quite useful for purposes of reference, although similar facts are available in the population volumes. It would have been more useful if, in place thereof, information had been given regarding the population of the registration area with full details regarding sex, color, general nativity, and parent nativity. For the entire registration area a table should have been given for the population by single ages, and corresponding information should have been given for the mortality. Such a table has never yet been introduced into the census, and its introduction into local health reports is exceedingly rare.* There would appear, however, strong reasons for the introduction of such tables into future reports, since, for a variety of purposes, details of population and deaths by single ages are exceedingly valuable; and, as long as no rates are calculated, the results are not likely to mislead the general public. The facts are principally of value to those who are interested in the construction of life tables and investigations as to the possible misstatement of age and the approximate accuracy of registration returns or who for special purposes may require age groupings other than those adopted in the general text.

Part II: Fundamental Tables 1 to 13.

Part II of the report contains thirteen fundamental tables, of which the first gives information relative to "Population and Deaths by States and Territories at Each Census, 1850 to 1900." This table is likely to be consulted by many persons not generally interested in the details of the census investigation; and any possible conclusions derived from this table must needs be misleading, since as stated in the Introduction (Part I, p. xii), previous to 1880 only enumerated deaths were returned,† and any possible conclusions based on the earlier returns must of course be misleading, and not comparable with the returns for later years. No textual explanation accompanies the tables in this volume, although some explanation proves necessary in nearly every case to avoid erroneous conclusions.

---

*See Table No. 9, Joseph von Körösy's "Die Sterblichkeit der Stadt Budapest," Berlin, 1901.

† This statement is incorrect; for Kennedy, in his preliminary report on the Eighth Census, page 24, states as follows: "The deaths in nearly all of the principal cities are annually registered and reported chiefly in connection with the boards of health. Whenever the deaths could be more correctly ascertained from these local records, the census marshals were authorized to copy them. But on examination they appear to have rarely availed themselves of the privilege, with one large exception, mentioned below. . . . In Massachusetts such an organization is in successful operation, and our marshals appear in this instance to have resorted to the State registry. The resulting proportion of deaths exhibited in the foregoing summary is noticed to be relatively greater in Massachusetts, but the disparity will be rightly ascribed to the better conditions under which the permanent registry operates rather than to any marked difference of climate compared with that of the adjoining States."

The second table is of a similar character, showing the mortality by sex in each State and Territory since 1870. This table is also very likely to be improperly used; and, while of value as a matter of record, it should have been accompanied by some textual explanation.

The third table shows the deaths in each State and Territory by color and race for the census year of 1900; and, while of value for purposes of reference, it should have been accompanied by a few explanatory remarks calling attention to the untrustworthy character of the returns for non-registration States. It is not stated why information regarding deaths in Alaska was omitted. If the data were not collected, this fact should have been indicated by a foot-note.

Table 4 gives the deaths by color, general nativity, parent nativity, and sex for States and Territories, and registration cities. It would have been more useful if information regarding the colored population had been given in detail, showing the deaths of negroes, Chinese, Indians, and Japanese separately.

Table 5 gives the fundamental data regarding the mortality in States, Territories, and registration cities by age periods with distinction of sex. This table is an exceedingly useful one, but its value would have been very materially increased if the deaths had been returned by color and foreign parentage. By omitting a number of less necessary tables, space could readily have been found for the practically indispensable data regarding the mortality by age and race for cities having a large negro population.

Table 6 gives the deaths at each age by sex, color, general nativity, parent nativity, and birthplaces of mothers. This is a most useful and important table, which is subdivided into sections, first giving data for the country as a whole, then for the registration record by subdivisions (some of which, however, are not necessary), followed by detailed information regarding the mortality in different States, both registration and non-registration. This table is very useful, and in combination with preceding tables the data would have been of the greatest possible value if the corresponding information regarding the living population at different periods of life, with due regard to sex, color, nativity, etc., had been given in the aggregate for the registration area, and perhaps for the registration cities.

Table 7 gives the deaths from each reported cause by States, State groups, and registration cities. This table is useful for reference in that the deaths from different causes are given in alphabetical order; but some textual introduction should have been added to caution the reader against possible errors of judgment in that closely related diseases, under alphabetical headings, are necessarily given in different parts of the tables. The alphabetical arrangement could have been improved in some instances, as, for instance, in the classification of rupture of the bladder under the letter "R," where it, of course, is not likely to be found without careful scrutiny of the entire table, the assumption being that it would be given under letter "B," with the qualification following the word "Bladder." The mortality from suicide is given in six subdivisions, whereas it could have been much more conveniently combined into one group. This subdivision of suicide, according to method, is carried through all the census tables, leading to a very considerable waste of space and the needless computation of a large number of rates and ratios. This necessitates in all general considerations of the subject a rearrangement and recomputation of the necessary proportional equivalents. The same blunder was made in the census reports of 1890, proving a source of considerable annoyance to those who make use of the data. In other words, method in suicide is a very subordinate element compared with the aggregate mortality from this cause, which is no-where stated in the census except in Section XII of the analysis. Since no such elaborate details are given for any other cause, excepting cancer, it seems rather curious why the facts should have thus been given with regard to suicide. Accidents should have been given in their alphabetical arrangement under letter " A," with due regard to the subdivisions of this group of causes; but this, unfortunately, has not been done, and any one wishing to ascertain from this table the aggregate mortality from accidents and injuries must first extract, with no small difficulty, the different items under which the returns for this group of deaths are given. The elaborate subdivisions adopted for this table regarding States, State groups, and registration cities, is hardly necessary in view of the very small number of deaths reported for a large number of the 219 specified causes.

It would have been desirable to have had some textual explanation as to the method adopted in classifying deaths reported as having been due to different causes. Certainly, not less than 5 per cent. of all the deaths returned to registrars are reported as due to more than one cause; and, the subject being one of very considerable interest to those who aim at accurate registration, the method adopted by the Census Office would have been of interest and value. This table takes up 110 pages, whereas it could readily have been condensed into one-fourth of this space.

Table 8 shows the deaths in the United States, in the registration area, and in each State and Territory by groups of diseases. The unscientific nomenclature of diseases follows the Eleventh Census, although not in general use, and discarded by Mr. King in the introductory part of Vital Statistics, Part I. Mr. King there states that in future publications the Bertillon classification will be adopted, but he gives no reason why the method was continued in the present reports. This table is very useful for a variety of purposes, and can readily be employed in special investigations by the recalculation of ratios per thousand deaths at specified periods of age.

Table 9 is identical in construction with Table 8, the deaths are given only for the United States as a whole, with distinction of color. This table is limited to the white population, the colored population as a group, the Indians and the Chinese; but it would have been a useful addition if separate data had been given for the negro population and for the Japanese, even though for the latter the number of deaths recorded in the entire United States, according to Table 3, was only 117. Since definite conclusions are advanced regarding the mortality of the Japanese in Section VI of the analysis, it would seem but proper that the necessary fundamental data from which the conclusions were arrived at should have been given to the public.

Table 10 is also identical with Table 8 in that the mortality by age and cause and classes of deaths is given by color and race for the registration area. Here, however, the information is given only for the colored as a group and for the Chinese, data regarding the Indians and Japanese being omitted. It is true that the total number of deaths of Indians in the registration area was only 319, and of Japanese 86; but since the deaths in these populations were given in Section VI of the analysis, and death rates from certain causes by race, with corresponding reflections upon the high mortality of Indians from consumption and the low mortality of Japanese from this disease, it would have been but proper to have given the fundamental data from which the conclusions were derived. As elsewhere stated, no corresponding information regarding the Chinese, Indian, and Japanese populations of the registration area by age periods is given in the fundamental tables of the population volumes; and it is therefore impossible to calculate accurately the mortality of the three races for the purpose of scientific comparison with the mortality of the white population.

Table 11 gives in elaborate detail, with proper distinction of age periods, the mortality of white persons in the registration area by birthplaces of mothers. It is not stated why this information was not also given for the United States; but the table as given is a very useful one, and a valuable contribution to our very limited knowledge regarding the mortality of the population of foreign parentage in this country. Conclusions regarding the mortality of the foreign born are misleading unless based upon rates derived from the living population at different periods of life, since the foreign born are mostly of adult ages. It is therefore of the utmost importance to consider the mortality of the American population on the basis of parentage; and it may not be out of place to add that this fundamental principle was first recognized by Dr. Snow in the registration reports of Providence, R.I. A useful subdivision could have been introduced by giving separate returns of the mortality of persons whose mothers were of French-Canadian birth in distinction from those who were of English-Canadian birth. The mortality of the two elements of the Canadian population is radically different, the former being subject to a very high death rate of children under five years of age, while the latter enjoy a comparatively low mortality at this period of life, while for both elements the mortality is low at adult ages.

An unfortunate omission is the mortality of the Portuguese, as this nationality forms a considerable portion of the populations of Massachusetts, Rhode Island, and California, far more so, for example, than the French population, since there are in Massachusetts only 3,905 persons born in France against 13,453 persons born in Portugal. A very useful distinction is made between the mortality of persons of Russian and Polish parentage; for the mortality rate differs quite considerably, and the two nationalities should never be combined, no more than Hungarians and Bohemians, two other nationalities subject to different rates of mortality at different periods of life.

Table 12 gives general information regarding deaths from specified causes and groups of causes in registration States by birthplaces of mothers, but without distinction of age. This table is one of very limited usefulness, and the thirty-five pages necessary could readily have been reduced to less than ten if only the more important causes of death had been given in detail.

Table 13 gives the deaths in the United States, in the registration area and its subdivisions and in each grand group, from certain diseases at certain ages and from certain specified diseases and classes of diseases by months, with distinction of sex. This table takes up 174 pages; and, if anywhere in the census volumes there is extravagant waste of space for needless purposes, it is in this table, which, at its very best, can only have a very limited degree of public utility. It would have been fully sufficient to have given this information for the United States as a whole, and at most for the registration area, instead of giving all the information in elaborate detail for every possible subdivision by groups and grand groups of the entire United States. This table illustrates forcibly, perhaps more than any other evidence quoted, the non-critical nature of the supervising authority in charge of the division of vital statistics.

Not only is the table faulty in itself in that the age grouping, for instance, is unsatisfactory; but it gives other evidence of an absence of critical and careful supervision. Generally, three age groupings are given, to which is added a line showing the mortality at unknown ages. Of these there are about twelve to a table, all pertaining to an absolutely non-essential aspect of the general problem. It is not going too far to say that one-fourth of the space of almost three hundred pages is wasted for an entirely needless purpose. However necessary a statement of unknown ages may be in the original tables as compiled in the Census Office to act as a check on the accuracy of the original tabulation, it does not appear necessary that this information should be given in the published fundamental tables and made to occupy about one-fourth of the entire space. The age grouping generally adopted is under five, five to fifty-nine, and sixty and over. Since for all general census purposes the age grouping at adult periods ends with sixty-five, it would have been more desirable to have done so here; while a fourth age group, fifteen to twenty-four, could have been added to take the place of the line now occupied by data for unknown ages. In some instances different age groupings are adopted without, apparently, much discrimination. As further evidence of the needless waste of space in this elaborate table, it may be pointed out that the mortality from accidents and injuries is given by months and sex in all the different grand groups or regional divisions of the country, for all minor subdivisions, including suicide, with distinction of method, making it possible, of course, for the curious to learn how many deaths from suicide by drowning occurred in grand group 3 during each month of the year and at different periods of life. Since there was only one death from this cause, and this death occurred in June, being that of a male, probably the curiosity is satisfied. But, when such a detailed analysis, serving no possible practical purpose, is carried through almost two hundred pages of the census volume, it is a waste of space and opportunity with which those who require the volumes for practical purposes can have little patience.

Mortality Data by Single Years of Life.

Instead of publishing a mass of unnecessary details likely to prove of possible value only in extremely rare cases, there should have been published a fundamental table of American mortality, showing for each single age of life the number of deaths enumerated and registered, first for the entire United States, second for the registration area, third for the non-registration area. This table should have been supplemented by tables of deaths by single ages, with distinction of sex, color, and nativity; but such a table need only have been given for the registration area, for which the corresponding population data should have been published. Population volume, Part II, contains such tables for all the States; but by an unfortunate oversight the data regarding deaths by single ages for registration States were not given to the public. Such tables, aside from the fact that they make possible combinations or groupings other than those adopted in the analysis, serve the further and still more important purpose of affording an indication of the accuracy of age statements as affected by race, nationality, and registration mortality. It is to be hoped that the forthcoming annual volume will contain such a table for the registration area as a whole and with due consideration of race, showing separately the mortality at individual ages and groups of ages for the white, negro, Chinese, Japanese, and Indian populations. Such a table would certainly serve a far more useful purpose and occupy less than one-twentieth of the space given to wholly unnecessary details of the mortality by months from different causes and at different ages in the twenty different regional divisions of the United States.

Conclusions.

Vital statistics have a value which cannot be measured in monetary terms. They exhibit from year to year, from decade to decade, the health progress of the nation; and in numerous other ways they serve as an index factor of social and economic progress. Vital statistics, more than any other statistical data, enable the careful student of social and economic tendencies to establish evidences of progress and decay; and, in recognition of their great value, national, State, and municipal governments have expended large sums of money in the collection and registration of births, marriages, and deaths. If in a large measure it is true today, as pointed out by De Bow in 1855 in his volume on the vital statistics of the Seventh Census, that "it is more easy to satisfy mankind of the value of any other branch of statistics than that which relates to the numbers which die in any period, their ages, sex, occupation, condition, and nativity, and the causes which produce such deaths,'' it is almost entirely because there has been practically no public education in the elementary principles and in the scientific use of such data. Although physicians make frequent use of vital statistics, and although most contributions to medical and surgical literature abound with statistical tables, the evidence is overwhelming that few medical practitioners and sanitarians have a clear recognition of the statistical method and the relative value of the different statistical elements, which may properly be laid down as a most serious defect in the teachings of modern medicine.

Numerous illustrations can readily be furnished to prove this general ignorance of even the most simple elements of vital statistics. Thus, for example, Elihu Root, in his report as Secretary of War for the year 1899, commits himself to the view that "the significance of the annual *rate of death* from disease in the Philippines (17.2 per 1,000) may be better appreciated by comparison with the rates *in* some of our well-known American cities.'' (The italics are mine.) Mr. Root gives a table showing the annual death rates of Washington, Boston, San Francisco, etc., together with the mortality rate from disease of soldiers in the Philippines. Even a moment's reflection would have made it clear to Mr. Root that a comparison of the death rate of soldiers, mostly of ages eighteen to thirty, could not properly be made with the mortality of the general population at all ages. Even a comparison with the general death rate of cities, at ages fifteen to forty-five, which, according to the then available census of 1890, was 10.9 per thousand, would not have been accurate in that soldiers represent a carefully selected class of physical risks in contrast to the general population, which includes the sick and otherwise physically impaired. The only accurate method of comparison which could have been suggested to the Secretary of War by the Surgeon-General of the army would have been the average mortality rate from disease of soldiers in the United States army previous to the war with Spain. But by this method the argument advanced by Mr. Root could not have been proven for, according to the annual reports of the Surgeon-General, the mortality of soldiers from disease during the five years, 1891–1895, was at the rate of 4.3 per thousand, while during 1896 the rate was 3.8, and during 1897 it was 3.1. In other words, the mortality of soldiers in the Philippines from disease was four times as great as the mortality from disease of United States soldiers under conditions of peace.

A similar misleading comparison, made for the same purpose of proving the loss of life in our military operations to have been of comparatively small importance, is furnished by an extract from the *Medical Record*, printed in the New York *Sun*. The statement is to the effect that "the death rate of the troops in France amounts to 6.1, in Algiers to 12.3, and in the colonies to 42.95 *per cent.*" France has serious problems of fecundity and mortality and complex problems of colonization, but the nation is at least fortunate enough not to lose almost one-half of its army in military operations in the colonies during a single year. It is not necessary to point out that the rate quoted is not per cent., but per thousand. This, however, evidently escaped the writer of the article, who remarks that, "when we compare these statistics of an army at peace and those of the mortality rate among our own soldiers in the war with Spain, which was something like 2 *per cent.*, it is only fair to ask whether the great outcry against the excessive death rate in our army is wholly warranted." As a matter of fact, a death rate of 2 *per cent.* in our own army is equivalent to 20 per thousand, which is five times that of a normal army death rate of 4 per thousand.

That such abuses of the statistical method are not at all infrequent, it is hardly necessary to point out; but a few more illustrations may not be out of place in this statement of the evident need of a more scientific and common-sense method of dealing with the nation's vital statistics. Under date of Oct. 10, 1901, the New York *Sun* contains a despatch from Washington relative to a report of General Wood, then commanding the department of Cuba, to the effect that "the *percentage* of loss was 1.25 per thousand." This statement is equivalent to a request at the grocer's for a quart of molasses at 16 cents a yard. Yet the New York *Sun* prides itself on its accurate use of good English. There is evidently room for a great improvement in the accurate and proper use of rates and ratios determined by the statistical method.

In a still more recent issue of Aug. 26, 1902, in a leading editorial on self-destruction, itself full of fallacies, misleading data and erroneous conclusions, the *Sun* remarks that, "according to the most authoritative of recent statistics of suicide, the country in civilization *where the rate per thousand living is greatest* is Saxony, with 31.1 *per cent.*, while in the United States it is only 3.5 *per cent.*" As a matter of fact, the rates quoted are per hundred thousand, and the term "per cent." is as radically misleading as it is completely misunderstood by the writer of the editorial. Since the general average rate of mortality from all causes in the United States is not as high as 2 per cent., a suicide rate of 3.5 per cent. would be an unheard of intensity of self-destruction. These illustrations of the abuses of the statistical method, especially in the direction of mortality data, emphasize the need of public education, which can only come about through a more scientific treatment of the subject on the part of those who have charge of the tabulation and analysis of municipal, State, or national health reports. As long as it is possible to arrive at absolutely opposite conclusions on the basis of rates published by the authority of the national government, the general public cannot be seriously found fault with for similar errors.

While in England medical officers of health are usually graduates of distinguished universities, and graduates of a special course on public health matters, giving the right to the title "doctor of public health," in this country the registration of vital statistics and the supervision of local health matters is as likely to be intrusted to a civilian as to a physician, but in either case generally to one who has given but very little time and thought to the larger and more important problems of public health. This is made evident by an examination of the large number of public health reports published for American cities, which, while, generally speaking, may be satisfactory as regards public health matters from the point of view of sanitary administration, fall lamentably short in the direction of a careful study of the local mortality experience as affected by race, parent nativity, and occupation. Most of the official references made to the vital statistics are entirely perfunctory, and the disease classification adopted is usually crude, while, if ages at death are given at all, they are generally given by arbitrary divisional periods of life. Thus the comparison of the health conditions of one community with another is difficult and quite often impossible, while for any given community it is next to impossible to determine accurately the specific importance of different mortality elements or the specific mortality at different periods of life. Often numerous tables will be given, showing the mortality in great detail by months,—a factor of comparatively small, if any, importance, regarding most of the diseases; but with only very rare exceptions is any information whatever published regarding the mortality by occupation,—a most important factor, especially for large manufacturing communities. A thorough analysis is rarely attempted, accurate rates on the basis of population by divisional periods of life are seldom calculated, and conclusions of the most misleading nature are advanced, while the real value and importance of vital data is lost sight of. These, then, are the general reasons why vital statistics are not appreciated by the general public to the extent that would be desirable, and hence the importance that such contributions as are made by the Census Office to this branch of scientific inquiry should bear the stamp of greatest ability and absolute accuracy.

It is a matter of sincere regret to the writer that the census volumes on vital statistics should in 1900 have fallen so far short of what the general public, in view of the vast importance of the subject, had a right to expect. To those who are compelled to make use of published statistics on public health, the defects of the volumes, as pointed out in this review, must needs prove a most serious hindrance in connection with special mortality investigations. Human life has a value which cannot be measured in financial terms, but the courts have found no difficulty in fixing an approximate valuation on life prematurely ended as the result of violence or negligence. A needless death from typhoid fever at the age of twenty, resulting from an impure water supply, as the direct result of criminal municipal negligence, is not merely measured by the usual estimate of $5,000, but is far more accurately measured by the expected after lifetime, which for a man at twenty would be represented by about forty years. If, then, as the result of a more careful and scientific study of vital statistics, it is possible to set forth clearly that the great waste of life, of which we are all in a measure aware, can be diminished by measures tending to prevent accidents or the unnecessary prevalence of disease, the social and economic value of vital statistics will become quite readily apparent to the general public.* The census is a costly undertaking; and the American people, who pay liberally for investigations of this kind, have a right to insist that they shall not be imposed upon by a mass of misleading statistics and conclusions published under government authority as a contribution to science.

---

* See "An Address [by the writer] on the Practical Use of Vital Statistics," published in the "Proceedings of the New Jersey Sanitary Association" for 1900, pp. 60–72; also, a paper on the "Need of Accurate and Uniform Social Statistics," published in the "Proceedings of the First New Jersey Conference of Charities and Correction," 1902, pp. 104–110.